REMARKS/ARGUMENTS

Reconsideration of this application is respectfully requested. The following remarks are responsive to the Office Action mailed March 18, 2004. Claims 1-7 and 9-40 remain in the application and claim 8 has been cancelled. Applicants note and appreciate the subject matter deemed allowable by the Examiner.

Claims 5-9, 11, 16, 17, 19-23, 25, 27-34, 36, 38-40 are allegedly rejected under 35 U.S.C. 103(a) as being unpatentable over Fleming-Dahl US Patent 6,442,495 (hereinafter "Fleming-Dahl") in view of Moher US Patent No. 6,161,209 (hereinafter "Moher").

Claims 10, 12, 13, 15, 18, 24 and 35 are allegedly rejected under 35 U.S.C. 103(a) as being unpatentable over Fleming-Dahl in view of Cioffi US Patent No. 5,887,032 (hereinafter "Cioffi").

Claims 7 and 8 are allegedly rejected under 35 U.S.C. 103(a) as being unpatentable over Fleming-Dahl in view of Bradley US Patent 3,814,868 (hereinafter "Bradley").

CLAIM REJECTIONS

Claim Rejections under 35 USC §103, Fleming-Dahl in view of Moher

Fleming-Dahl discusses using a signal-to-noise (SNR) estimation process for aiding in signal demodulation and message recovery or for indicating the fidelity of a recovered message. The SNR estimator tracks changes in the channel noise power over time by collecting received probability density functions, either contained in closed form equations or stored in lookup tables. A maximum likelihood SNR value or each iterate value of signal is calculated as well as a current average SNR value as a running average of the instantaneous maximum likelihood SNR. The average SNR is used as feedback to determine if a local instantaneous maximum likelihood SNR value close to the current average SNR exists, and if it does exist, saving the local instantaneous maximum likelihood SNR value as the SNR for the value of the signal. In other words, this algorithm serves to calculate an optimum SNR based upon a running average and instantaneous values in an effort to optimally demodulate a signal that may be experiencing interference.

Fleming-Dahl does not discuss accumulating statistical information about an impairment type associated with an impairment source or creating an initial a priori statistical model associated with the impairment type and impairment source based upon the accumulated statistical information, as recited in the present claims. Although Fleming-Dahl discusses calculating and possibly storing a running SNR average and a maximum likelihood SNR value (statistical information), it does discuss statistical information about an impairment type associated with an impairment source. Fleming-Dahl does not concern itself about the impairment type or the impairment source but only that noise or an impairment exists, of any type or from any source, and that the level of noise may change over time affecting the decoding process.

Additionally, as generally indicated in the present Office Action, Fleming-Dahl does not describe creating an a posteriori statistical model of the impairment type by collecting a plurality of probability density functions corresponding to a signal-to-noise ratio associated with the impairments type from at least one signal line of the communication system, creating an updated a priori statistical model based upon the a posteriori statistical model and the initial a priori statistical model, and using the updated a priori statistical model to diagnose the impairment type among signal lines of the communication system.

Adding the teachings of Moher alone or in combination with Fleming-Dahl does not render the present claims obvious. Moher describes a method for joint detection of multiple code digital signals that share the same transmission medium in a manner that causes mutual interference. The reliability estimate is the conditional probability of the data elements based upon a statistical interference model, preliminary estimates and a priori information. A priori information is only available after the initial decoding iteration as it is based upon the results of the first iteration thus creating a feedback loop until the last decoding iteration.
However, Moher does not discuss creating an a posteriori statistical model of the impairment type by collecting a plurality of probability density functions corresponding to a signal-to-noise ratio associated with the impairment type from at least one signal line of the communication system, creating an updated a priori statistical model based upon the a posteriori statistical model and the initial a priori statistical model, or using the updated a priori statistical model to diagnose the impairment type among signal lines of the communication system, as recited in the present claims. Moher merely describes serially generating reliability estimates by using a series of single a priori calculations (not a plurality) based on multiple coded signals that share the same transmission medium and only uses the a priori calculations in the decoding process for that

transmission medium only and not to diagnose the impairment type among signal lines of the communication system.

Adding the teachings of Cioffi to Fleming-Dahl or Moher does not render the present claims obvious. Cioffi discloses a system for canceling crosstalk interference from received signals on a given line by adaptively estimating the crosstalk interference induced by other line transmissions. Cioffi does not disclose accumulating statistical information about an impairment type associated with an impairment source, creating an initial a priori statistical model associated with the impairment type and impairment source based upon the accumulated statistical information, creating an a posteriori statistical model of the impairment type by collecting a plurality of probability density functions corresponding to a signal-to-noise ratio associated with the impairment type from at least one signal line of the communication system, creating an updated a priori statistical model based upon the a posteriori statistical model and the initial a priori statistical model, and using the updated a priori statistical model to diagnose the impairment type among signal lines of the communication system, as recited in the present claims.

Adding the teachings of Bradely to Fleming-Dahl does not render the present claims obvious. Bradely describes an automatic gain control circuit that isolates disturbances associated with transmission errors. However, Bradely does not disclose accumulating statistical information about an impairment type associated with an impairment source, creating an initial a priori statistical model associated with the impairment type and impairment source based upon the accumulated statistical information, creating an a posteriori statistical model of the impairment type by collecting a plurality of probability density functions corresponding to a signal-to-noise ratio associated with the impairment type from at least one signal line of the communication system, creating an updated a priori statistical model based upon the a posteriori statistical model and the initial a priori statistical model, and using the updated a priori statistical model to diagnose the impairment type among signal lines of the communication system, as in the present claims.

Therefore, the prior art, alone or in combination, does not teach each and every feature of the present claims and the claims are patentable over Fleming-Dahl in view of Moher, Cioffi, and/or Bradley.

Because independent claims 20, 30 and 31 have substantially similar features as claim 5, the same arguments that applied to claim 5 also apply to these claims and their associated dependent claims.

For the foregoing reasons, applicant respectfully submits that the applicable objections and rejections have been overcome and that the claims are in condition for allowance. If there are any additional charges, please charge Deposit Account No. 02-2666.

Respectfully submitted,

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